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# DEVELOPMENT OF ELDERLY NURSING MODEL IN DEMENTIA PREVENTION IN MALANG CITY

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## ABSTRACT

### Introduction
The nursing profession faces the challenge of a rapid increase in the elderly population and complex problems. The elderly are often accompanied by multiple diseases, so that the aggregate elderly become a vulnerable group to health problems, especially dementia. Elderly insomnia with dementia is an aggregate vulnerable to biological, social, economic, spiritual, lifestyle and life problems. Elderly blood vessels that have experienced stiffness occur constriction, so that blood to the kidneys decreases and brain cells are disturbed.

### Method(s)
This study uses an operational research design, namely research conducted in various stages, which aims to obtain optimal solutions through scientific methods to formulate and formulate problems. Stage 1 problem identification consists of: Interviews, Measurements, Documents, Field Notes, Literature Review, freedom, participation, attention, fulfillment, and Interviews using Questionnaire.

### Result(s)
Based on table 5.1, the frequency distribution of the demographics of the respondents is mostly female (64.96%). The income of the respondents is mostly above the City Sectoral Minimum Wage, which is Rp. 2,310,000,- per month and the most employment status is still working (55.47%), while the education of the Elderly who are the most respondents is not in school, which is 49.60%. The employment status of the Elderly as respondents is mostly working, which is 54.74%.

### Conclusion(s)
Internal factors that form the nursing model of healthy sleep pattern suggestions for the elderly are body temperature. External factors that form the nursing model of healthy sleep pattern suggestions for the elderly are social support. An expert test of the nursing model of healthy sleep pattern suggestions for the elderly with hypertension who experience insomnia sleep disorders was obtained.

## INTRODUCTION

The nursing profession faces the challenge of a rapid increase in the elderly population and complex problems. The elderly are often accompanied by multiple diseases, so that the aggregate elderly become a vulnerable group to health problems, especially dementia (Andersson & Chesney, 2008; Stanhope & Lancaster, 2008). According to WHO (2010), the percentage of the elderly is estimated at 9.11% of the world's population. In Indonesia, the elderly are the age group 60 years and over. According to the Bureau of the Census (2011), Indonesia is expected to experience the largest increase in the elderly population, after China, India and the United States, reaching 414%. In 2010, the absolute number of elderly people in Indonesia was higher after Japan (25,108,000 people), reaching 23,992,552 people. The Netherlands is 2,801,000 people, Australia is 2,729,000 people, and South Korea is 4,052,000 people.

The Central Bureau of Statistics (BPS) projects that the elderly in Indonesia in 2020 will be 11.34% of the population, which is 28,822,879 people. Generally, the elderly have a prevalence of dementia reaching 20 to 40%. The older a person is, the higher the risk of dementia (Zulkarnain, 2010). The population registered with the Population and Civil Registration Service of Malang City is 865,011 people spread across 5 Districts, 57 Villages, 544 RW and 4,098 RT. The number of elderly people in Malang City is 10% of the total population, which is around 86,501 people. Elderly are aged 60 years and above, meaning they have a fairly high risk of dementia, so research to prevent dementia or prevent dementia is very important (Dinkes, 2009).

The incidence of dementia in the elderly is in line with the disturbance of the elderly's sleep patterns. Unhealthy elderly sleep patterns result in the pineal gland producing less melatonin and the adrenal glands actively producing cortisol and adrenaline. The hormone melatonin is able to scavenge free radicals, while cortisol is able to suppress the immune system and adrenaline stimulates the heart and constricts blood vessels. (Albright, 2003; Lai, 2005; Motivala, et, al, 2006). However, the dementia prevention management model to improve the condition of the elderly still needs explanation.

Elderly insomnia with dementia is an aggregate vulnerable to biological, social, economic, spiritual, lifestyle and life problems. Elderly blood vessels that have experienced stiffness occur constriction, so that blood to the kidneys decreases and brain cells are disturbed. This condition can cause dementia in the elderly. (Stanhope & Lancaster, 2004; Shneerson, 2005; Martin, 2007).

Dementia is a negative functional consequence. The cardiovascular system is disturbed, which will affect the occurrence of snoring and apnea. The elderly urinary system experiences a decrease in bladder volume and contraction ability, so that it is easy to wake up at night to urinate. The elderly neurohormonal system often stimulates the elderly to wake up because of pain. Dementia can cause severe headaches and dizziness that worsen sleep quality and end in death (Miller, 1999; Ganong, 2003; Gayton, 2005; Marie, 2007).

Cardiovascular system disorders, which occur in the elderly's blood vessel organs, the most common is stiffness of the blood vessel walls due to degeneration factors. This blood vessel stiffness is more due to factors of increasing age and lifestyle factors, which can cause a progressive increase in blood pressure. Increased vascular resistance or narrowing of blood vessels as a factor causing hypertension. This condition is also stimulated by sympathetic nerve activity and the release of adrenaline and noradrenaline. The results of the degenerative mechanisms above can trigger dementia (Chenitz, 1991; Miller,

1999; Allender & Spradly, 2005; Cowen, 2006; Martin, 2007).

Sleep disorders can accelerate the incidence of dementia by 25% in men and 10% in women. In Japan, insomnia can cause dementia as much as 90.4 per 1000 people. Sleep failure can increase adrenaline, in chronic conditions can reduce baroreflex and chemoreflex abilities so that blood vessels are sclerotic, the heart fails to pump and the kidneys experience distress. If insomnia continues, blood pressure increases and there is a risk of stroke and death (Philip, 2003; Suka, 2003; Ayala, 2005; Ruilope, 2007).

Dementia in the Elderly if left untreated can cause damage to body organs, directly or indirectly. The organ damage includes micro infarction in the brain and others. The damage or complications depend on the size and level of damage by degenerative factors. If this occurs chronically it will be fatal (Soeharto, 2004; Guyton, 2005; Sudoyo, 2006).

## METHODS

This study uses an operational research design, namely research conducted in various stages, which aims to obtain optimal solutions through scientific methods to formulate and formulate problems. Stage 1 problem identification consists of: Interviews, Measurements, Documents, Field Notes, Literature Review, freedom, participation, attention, fulfillment, and Interviews using Questionnaires. Stage 2 Model development as an alternative solution to the problem includes Critical Review, Expert Council Agreement. Stage 3 is Model Validation: model trials include Freedom, Participation, Attention, Self-Fulfillment, and Dignity. The population in this study were the Elderly as the target population and the Elderly with dementia in Malang City in 2016 as the accessible population. The number of Elderly in Malang is 86,501 Elderly. The Elderly in Malang City who suffer from dementia are 25.7%, which is 22,230 people. The accessible population in this study are the Elderly with dementia. The method used to determine the location of the study is a multistage sampling method, namely selecting a village randomly to be representative and can be used as a sample in the study.

## RESULTS

Distribution of demographic frequency of elderly, namely; Gender, Income, Education, Occupation of Elderly with Dementia in Malang City, October 2016, which we can study in the table below as follow.

**Tabel 5.1**
**Demographic Frequency Distribution: Gender, Income, Education, Occupation of Elderly People with Dementia in Malang City, October 2016 (N = 137)**

| Variable | Frequency | Persentation |
|---|---|---|
| **Genger:** | | |
| 1. Male | 48 | 35.04 |
| 2. Female | 89 | 64.96 |
| **Salary** | | |
| 1. < UMSK (Rp. 2.310.000/month) | 61 | 44.53 |
| 2. ≥ UMSK (Rp. 2.310.000/month) | 76 | 55.47 |

| | | | |
|---|---|---|---|
| **Education** | | | |
| 1. | Not School | 68 | 49.60 |
| 2. | Elementary School | 30 | 21.90 |
| 3. | Junior High School | 27 | 19.70 |
| 4. | Senior High School | 5 | 3.60 |
| 5. | Collage | 7 | 5.10 |
| **Profession** | | | |
| 1. | Not work | 62 | 45.26 |
| 2. | Work | 75 | 54.74 |

Based on table 5.1, the frequency distribution of the demographics of the respondents is mostly female (64.96%). The income of the respondents is mostly above the City Sectoral Minimum Wage, which is Rp. 2,310,000,- per month and the most employment status is still working (55.47%), while the education of the Elderly who are the most respondents is not in school, which is 49.60%. The employment status of the Elderly as respondents is mostly working, which is 54.74%

**Tabel 5.2**
**Frequency Distribution: Age, TB, BB of Dementia Patients in Malang City, October 2016 (N = 137)**

| Variabel | Mean | Median | Modus | SD | Min-Mak | 95%CI |
|---|---|---|---|---|---|---|
| Age | 68.49 | 69.00 | 60.00 | 6.08 | 60.00-80.00 | 67.47-69.52 |
| High | 156.71 | 156.00 | 150.00 | 7.55 | 142.00-180.00 | 155.43-157.98 |
| Weight | 58.12 | 56.00 | 50.00 | 7.82 | 50.00-80.00 | 56.80-59.44 |

Table 5.2 above shows that internal factors based on the demographics of the average age of the elderly with dementia in Malang City (68.49) with a minimum and maximum value (60.00-80.00). The distribution of the average height of the elderly with dementia (156.71) with a minimum and maximum value (142.00-180.00), while the distribution of the average weight of the elderly (58.12) with a minimum and maximum value (50.00-80.00) kilograms

**Tabel 5.3**
**Frequency Distribution: MAP, Pulse, Temperature, Respiration of Dementia Patients in Malang City, October 2016 (N = 137)**

| Variabel | Mean | Median | Modus | SD | Min-Mak | 95%CI |
|---|---|---|---|---|---|---|
| MAP | 211.07 | 210.00 | 186.67 | 17.12 | 186.67-243.33 | 208.18-213.96 |
| Pulse | 84.76 | 85.00 | 80.00 | 7.70 | 68.00-98.00 | 83.46-86.06 |
| Temperature | 36.13 | 36.00 | 36.00 | 0.34 | 36.00-37.00 | 36.07-36.19 |
| Breathing | 19.80 | 20.00 | 20.00 | 2.05 | 16.00-28.00 | 19.46-20.15 |

Based on table 5.3, it can be seen that the elderly who experience dementia in Malang City, with the distribution of the average MAP (Mean Arterial Pressure) which is the sum of the systolic pressure value with twice the diastolic value divided by three (211.07) with minimum and maximum values (186.67-243.33). This shows that the average elderly who experience dementia with an average high diastolic blood

pressure value exceeds 100 mmHg, while the normal diastolic value is 80-90 mmHg.

**Tabel 5.4**
**Analysis of Average Factors of Elderly Based on Freedom, Participation, Attention, Self-Fulfillment and Dignity Experiencing Dementia in Malang City 2016 (N = 137)**

| Variabel | Mean | Median | Modus | SD | Min-Mak | 95%CI |
|---|---|---|---|---|---|---|
| Freedom | 34.63 | 37.00 | 41.00 | 9.04 | 15.00-46.00 | 33.09-36.15 |
| Partisipation | 101.80 | 105.00 | 119.00 | 18.68 | 48.00-137.00 | 98.65-104.96 |
| Attention | 12.89 | 10.00 | 3.00 | 12.65 | 0.00-60.00 | 10.75-15.03 |
| Self Fullfilment | 12.33 | 12.00 | 11.00 | 7.25 | 0.00-35.00 | 11.10-13.55 |
| Dignity | 25.18 | 25.00 | 26.00 | 8.82 | 8.00-45.00 | 23.69-26.68 |

Based on table 5.4, it is shown that the average distribution of freedom of elderly people with dementia is (34.63) with minimum and maximum values (15.00-46.00), and the average distribution of participation of elderly people with dementia is (101.80) with minimum and maximum values (48.00-137.00), while the average distribution of attention problems is (12.89) with minimum and maximum values (0.00-60.00).

**Tabel 5.5**
**Analysis of Average Factors of Elderly People Based on Structural (Internal) Experiencing Dementia in Malang City 2016 (N = 137)**

| Variabel | Mean | Median | Modus | SD | Min-Mak | 95%CI |
|---|---|---|---|---|---|---|
| **Internal** | | | | | | |
| Family composition | 04.38 | 03.50 | 03.00 | 01.78 | 02.00-05.00 | 02.38-03.54 |
| Gender | 01.50 | 01.30 | 02.00 | 03.11 | 01.00-02.00 | 01.22-01.88 |
| Rank Order | 02.78 | 03.00 | 02.00 | 00.94 | 02.00-04.00 | 02.11-02.91 |
| Sub system | 08.23 | 06.45 | 07.00 | 05.01 | 01.00-10.00 | 08.12-08.78 |
| Boundery | 12.25 | 13.12 | 11.00 | 06.43 | 04.00-14.00 | 11.02-13.01 |

Based on table 5.5, it is described that the position of the elderly in the internal structure of the family, regarding the family composition with an average (04.38) with a minimum and maximum value (02.00-05.00). This means that the elderly in the extended family composition are generally the elderly as parents in the family.

**Tabel 5.6**
**Analysis of Average Factors of Elderly People Based on Structural (External) Who Experience Dementia in Malang City 2016 (N = 137)**

| Variabel | Mean | Median | Modus | SD | Min-Mak | 95%CI |
|---|---|---|---|---|---|---|
| **External** | | | | | | |
| Extended family | 02.58 | 03.03 | 03.00 | 04.50 | 01.00-04.00 | 02.11-03.55 |
| Large system | 05.01 | 04.77 | 04.00 | 07.34 | 03.00-07.00 | 03.78-06.11 |

Based on table 5.6, it is illustrated that the position of the elderly in the external structure in the family, regarding the extended family with an average (02.58) with a minimum and maximum value (01.00-04.00). This means that the elderly in the external structure of the extended family in general are still quite numerous in the extended family, namely the mode or which often appears (03.00).

**Tabel 5.7**
**Analysis of Average Factors of Elderly People Based on Structural (Contextual) Experiencing Dementia in Malang City 2016 (N = 137)**

| Variabel | Mean | Median | Modus | SD | Min-Mak | 95%CI |
|---|---|---|---|---|---|---|
| **Contextual** | | | | | | |
| Ethnicity | 04.88 | 05.01 | 01.00 | 04.08 | 01.00-10.00 | 04.11-06.35 |
| Race | 05.12 | 05.55 | 04.00 | 01.85 | 01.00-07.00 | 04.88-06.21 |
| Social class | 07.33 | 06.69 | 07.00 | 07.11 | 01.00-10.00 | 06.22-08.12 |
| Religion | 04.32 | 05.89 | 05.00 | 01.28 | 01.00-05.00 | 03.99-05.00 |
| Enviroment | 06.88 | 07.02 | 08.00 | 09.34 | 01.00-10.00 | 05.98-09.41 |

Based on table 5.7, it is illustrated that the position of the elderly in the structural contextually in the family, regarding ethnicity with an average (04.88) with a minimum and maximum value (01.00-10.00). This means that the elderly in the contextual structure ethnically are mostly Javanese (01.00), with the Mongoloid race (04.00). Social class with an average (07.33) and minimum and maximum values (01.00-10.00) with a mode (07.00) means that the most are the upper middle class.

**Tabel 5.8**
**Analysis of Average Family Factors Based on Freedom, Participation, Attention, Self-Fulfillment and Dignity of People with Dementia in Malang City 2016 (N = 137)**

| Variabel | Mean | Median | Modus | SD | Min-Mak | 95%CI |
|---|---|---|---|---|---|---|
| Freedom | 54.13 | 37.00 | 51.00 | 9.04 | 15.00-46.00 | 33.09-36.15 |
| Participation | 120.80 | 115.00 | 130.00 | 18.68 | 48.00-137.00 | 98.65-104.96 |
| Attentions | 42.89 | 10.00 | 43.00 | 12.65 | 0.00-60.00 | 10.75-15.03 |
| Self-care | 22.33 | 12.00 | 21.00 | 7.25 | 0.00-35.00 | 11.10-13.55 |
| Dignity | 35.18 | 25.00 | 32.00 | 8.82 | 8.00-45.00 | 23.69-26.68 |

Based on table 5.8, it is shown that the average distribution of freedom of elderly people with dementia is (54.13) with minimum and maximum values (15.00-46.00), and the average distribution of participation of elderly people with dementia is (120.80) with minimum and maximum values (48.00-137.00), while the average distribution of attention problems is (42.89) with minimum and maximum values (0.00-60.00).

**Tabel 5.9**
**Analysis of Average Family Factors Based on Structural (Internal) Experiencing Dementia in Malang City 2016 (N = 137)**

| Variabel | Mean | Median | Modus | SD | Min-Mak | 95%CI |
|---|---|---|---|---|---|---|
| **Internal** | | | | | | |
| Family composition | 03.78 | 03.50 | 02.00 | 01.78 | 01.00-05.00 | 02.38-03.54 |
| Gender | 01.45 | 01.30 | 02.00 | 03.11 | 01.00-02.00 | 01.22-01.88 |
| Rank Order | 02.33 | 03.00 | 02.00 | 00.94 | 01.00-04.00 | 02.11-02.91 |
| Sub system | 07.44 | 06.45 | 07.00 | 05.01 | 01.00-10.00 | 08.12-08.78 |
| Boundery | 10.11 | 13.12 | 07.00 | 06.43 | 01.00-15.00 | 11.02-13.01 |

Based on table 5.9, it is illustrated that the position of the elderly in the internal structure of the family, regarding the family composition with an average (03.78) with a minimum and maximum value (02.00-05.00). This means that the elderly in the extended family composition are generally the elderly as parents in the family.

**Tabel 5.10**
**Analysis of Average Family Factors Based on Structural (External) Experiencing Dementia in Malang City 2016 (N = 137)**

| Variabel | Mean | Median | Modus | SD | Min-Mak | 95%CI |
|---|---|---|---|---|---|---|
| **External** | | | | | | |
| Extended family | 01.98 | 03.03 | 03.00 | 04.50 | 01.00-04.00 | 02.11-03.55 |
| Large system | 04.21 | 04.77 | 04.00 | 07.34 | 01.00-07.00 | 03.78-06.11 |

Based on table 5.10, it is illustrated that the position of the elderly in the external structure in the family, regarding the extended family with an average (01.98) with a minimum and maximum value (01.00-04.00). This means that the elderly in the external structure of the extended family in general are still quite numerous in the extended family, namely the mode or which often appears (03.00).

**Tabel 5.11**
**Analysis of Average Family Factors Based on Structural (Contextual) Experiencing Dementia in Malang City 2016 (N = 137)**

| Variabel | Mean | Median | Modus | SD | Min-Mak | 95%CI |
|---|---|---|---|---|---|---|
| **Contextual** | | | | | | |
| Ethnicity | 04.78 | 05.01 | 04.00 | 04.08 | 01.00-10.00 | 04.11-06.35 |
| Race | 05.12 | 05.55 | 05.00 | 01.85 | 01.00-07.00 | 04.88-06.21 |
| Social class | 07.33 | 06.69 | 07.00 | 07.11 | 01.00-10.00 | 06.22-08.12 |
| Religion | 04.32 | 05.89 | 05.00 | 01.28 | 01.00-05.00 | 03.99-05.00 |
| Enviroment | 06.88 | 07.02 | 08.00 | 09.34 | 01.00-10.00 | 05.98-09.41 |

Based on table 5.11 above, from 137 elderly respondents based on structural contextual ethnicity, it is described that the position of the elderly in the structural contextually in the family, regarding ethnicity with an average of (04.78) with a minimum and maximum value (02.00-10.00). This means that the elderly in the contextual structure ethnically are mostly Javanese (01.00), with the Mongoloid race (04.00). Social class with an average of (07.33) and a minimum and maximum value (01.00-10.00) with a mode (07.00) means that the majority are upper middle class.

**Tabel 5.12**
**Analysis of Average Service Factors Based on Freedom, Participation, Attention, Self-Fulfillment and Dignity of People with Dementia in Malang City 2016 (N = 137)**

| Variabel | Mean | Median | Modus | SD | Min-Mak | 95%CI |
|---|---|---|---|---|---|---|
| Kebebasan | 34.63 | 37.00 | 41.00 | 9.04 | 15.00-46.00 | 33.09-36.15 |
| Partisipasi | 101.80 | 105.00 | 119.00 | 18.68 | 48.00-137.00 | 98.65-104.96 |
| Perhatian | 12.89 | 10.00 | 3.00 | 12.65 | 0.00-60.00 | 10.75-15.03 |
| Pemenuhan diri | 12.33 | 12.00 | 11.00 | 7.25 | 0.00-35.00 | 11.10-13.55 |
| Martabat | 25.18 | 25.00 | 26.00 | 8.82 | 8.00-45.00 | 23.69-26.68 |

Based on table 5.12, it is shown that the average distribution of freedom of elderly people with dementia is (34.63) with minimum and maximum values (15.00-46.00), and the average distribution of participation of elderly people with dementia is (101.80) with minimum and maximum values (48.00-137.00), while the average distribution of attention problems is (12.89) with minimum and maximum values (0.00-60.00).

**Tabel 5.13**
**Analysis of Equivalence of Age, Weight and Height Characteristics Between Intervention Group and Control Group, Malang, November 2016 (n=75)**

| Variabel | n | Mean | Median | SD | Normality Test | p Value* |
|---|---|---|---|---|---|---|
| **Age** | | | | | | |
| - Kel. Intervensi | 75 | 64.85 | 66.00 | 3.56 | 0.00 | 0.00 |
| - Kel. Control | 75 | 65.17 | 66.00 | 3.81 | 0.00 | |
| **High** | | | | | | |
| - Kel. Intervensi | 75 | 156.85 | 156.00 | 7.57 | 0.00 | 0.00 |
| - Kel. Control | 75 | 154.76 | 154.00 | 6.73 | 0.03 | |
| **Weight** | | | | | | |
| - Kel. Intervensi | 75 | 57.88 | 56.00 | 6.94 | 0.02 | 0.00 |
| - Kel. Control | 75 | 58.56 | 58.00 | 4.53 | 0.00 | |

note : * Spearman's test

Based on table 5.16 above, it shows that the results of the normality test for the two age groups, namely the intervention group and the control group, were obtained with an abnormal distribution (KS <0.05) with a p value (p = 0.00). The results of the statistical test of equivalence using the Spearman's Test obtained a p value (p = 0.00) or p <0.05 between the intervention age group and the control age group, meaning that the two groups are equivalent. This is reinforced by the value of the average difference between small groups, which is 0.22

## DISCUSSIONS

According to (Lueckenotte & Meiner, 2006) that changes that occur in the elderly due to age-related changes and additional risk factors in the form of dementia, have an impact on physical biology, psychosocial and economics. If this condition is not handled properly, it will cause balance disorders, namely progressive damage to the elderly brain to Alzheimer's and can be fatal. Miller (2009) himself said that in the theory of functional consequences, the elderly are seen as having the ability to achieve positive functional consequences, despite changes in age and related risk factors. Furthermore, the elderly are seen as unique individuals and are able to achieve positive functional consequences. However, Dorothea and Orem (1969) stated that humans have limitations, so that the assistance that can be given is based on the level of ability of the elderly, namely part of the compensation system or educational support only. According to Rahardjo (2009) that the routine and consistency of age, height and weight of the elderly make the pattern in the body especially neurotransmitter activity more stable, as well as the activation of the regulatory mechanism in the vasomotor center in the brain which begins with the sympathetic pathway that stimulates the preganglion to release acetylcholine and the release of nor-epinephrine which results in the work of renin-angiotensin-aldosterone in controlling memory improvement and reducing the risk of dementia.

In line with Brodaty's research (2012) which states that race, ethnicity, social class, religion and environment can increase the ability to answer or be responsive. So it can be said that the elderly have better memory and cognition. This condition is closely related to the elderly who are mostly over 65 years old so that their homeostasis ability is not as good as a younger age. However, this needs to be strengthened by research.

In general, the influence of the recommended nursing model to provide freedom, attention, self-care, participation and dignity of the elderly on the health status of the elderly has a significant influence. In line with the results of Lucille's research (1991) said that the daily activities of the elderly in Malang City and relaxation can increase NK cell activity and reduce antibody levels against dementia, which he concluded that the health status of the research subjects increased. Both studies are in line with the use of efforts to increase nighttime rest so that someone is more relaxed and has an impact on health status, but there are differences in this study, namely Gruzeiler uses biomarker indicators, while this study uses. According to Nugroho (2008) that the elderly if they can feel that their memory intelligence needs are met will have an impact on reducing the risk of dementia. For this reason, it is necessary to use module 1; supportive-educational and module 2; partial assistance for the elderly who experience dementia. The results of Stanhope's research (1998) that assistance for self-care and providing dignity for the elderly can reduce the risk of dementia in the elderly aged 60-70 years is not significant, namely p = 0.101 and Tomey (2006) carried out attention and freedom of the elderly, namely deliberate activities by expressing words that are persuasive and able to increase attention so that it causes improvements in the condition of the elderly. Attention and self-care activities studied using the randomized control trial method can reduce the risk of delirium in the elderly. The activities of the elderly who get freedom and feel dignified in this study were analyzed, which showed an increase in responding to questions, namely the sum of the values of improvements in the risk of delirium and dementia. In line with the results of Wang's study (2012) which stated that activities get freedom and feel dignified higher than and cause high brain waves and cause alpha waves,

namely will wake up and the amount of sleep in 24 hours will be low, namely with a value of p = 0.001. Both of these studies are in line but on deferens independent variable.

## CONCLUSIONS

Internal factors that form the nursing model suggest that the elderly improve their lifestyle such as weight and height, the elderly need freedom of action, attention, self-care, and have dignity can affect cognitive, so that dementia can be suppressed. External factors that form the nursing model for the elderly in Malang City with increasing levels of air pollution can affect the brain so that it is easy to enter the stage of delirium and dementia. The expert test of the nursing model above was obtained regarding the handling of dementia in Malang City who experienced delirium disorders, so that a model of improvement results and 2 (two) modules were formed with supportive-educational and partial assistance categories. In both categories, a booklet was prepared as a reference for the elderly.

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